AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (CURRENTLY AMENDED) An extraordinary magnetoresistance (EMR) magnetic head, comprising:

a first shield and a second shield defining a gap adapted for being positioned over a magnetic recording disk, wherein the shields are not in physical contact with each other; and

an EMR sensor positioned between the first shield and the second shield;

wherein a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk;

wherein a thickness of a majority of each of the shields is less than one half a width of the associated shield, the widths of the shields being measured in a direction parallel to the plane in which the EMR sensor resides, the thicknesses of the shields being measured in a direction perpendicular to the widths thereof.

2. (ORIGINAL) The magnetic head as recited in claim 1, wherein the EMR sensor includes a semiconductor material with impurities imbedded therein.

3. (ORIGINAL) The magnetic head as recited in claim 2, wherein the impurities include doping.

4. (ORIGINAL) The magnetic head as recited in claim 2, wherein the impurities include Au.

5. (ORIGINAL) The magnetic head as recited in claim 1, and further comprising a first insulator layer positioned between the first shield and the EMR sensor, and a second insulator layer positioned between the second shield and the EMR sensor.

6. (ORIGINAL) The magnetic head as recited in claim 1, wherein a current is applied to a pair of current contacts positioned on the EMR sensor.

7. (ORIGINAL) The magnetic head as recited in claim 6, wherein the plane is defined by a flow of the current.

8. (ORIGINAL) The magnetic head as recited in claim 6, wherein the plane is defined by a sensing field associated with the EMR sensor.

9. (ORIGINAL) The magnetic head as recited in claim 6, wherein magnetic fields associated with the magnetic recording disk reside in the shields to afford a voltage in the EMR sensor upon an application of the current via the current contacts.

10. (ORIGINAL) The magnetic head as recited in claim 9, wherein a pair of voltage contacts is positioned on the EMR sensor for monitoring the voltage.

11. (CURRENTLY AMENDED) The magnetic head as recited in claim 1, wherein a ~~width~~ the widths of the shields at a first point on the shields proximate to the magnetic recording disk [[is]] are less than widths thereof at a second point on the shields distant the magnetic recording disk.

12. (ORIGINAL) The magnetic head as recited in claim 11, wherein the first point on the shield defines a trackwidth.

13. (ORIGINAL) The magnetic head as recited in claim 11, wherein at least a portion of the side edges of the shields taper outwardly from the first point to the second point on the shields.

14. (PREVIOUSLY PRESENTED) The magnetic head as recited in claim 11, wherein the EMR sensor is positioned at the second point on the shields, the second point of each shield being positioned at an upper extent of the associated shield.

15. (ORIGINAL) The magnetic head as recited in claim 1, wherein the first and second shields are constructed from a ferromagnetic material.

16. (CURRENTLY AMENDED) A system, comprising:

a magnetic recording disk;

an extraordinary magnetoresistance (EMR) sensor including a semiconductor material with Au imbedded therein;

a pair of shields on opposite sides of the EMR sensor, wherein magnetic fields associated with the magnetic recording disk reside in the shields to alter a voltage in the EMR sensor upon an application of a current to the EMR sensor;

wherein one of the shields has a centerline, where at least about 75% of the centerline resides along intersecting planes, one plane being parallel to a flow of flux through the shields, the other plane being perpendicular thereto; and

means for positioning a plane in which the EMR sensor is positioned perpendicular to magnetic flux associated with the magnetic recording disk.

17. (CURRENTLY AMENDED) A system, comprising:

a magnetic recording disk;

an extraordinary magnetoresistance (EMR) sensor including a semiconductor material with Au imbedded therein;

a pair of shields on opposite sides of the EMR sensor, wherein the first and second shields are not in physical contact with each other, wherein a thickness of a majority of each of the shields is less than one half a width of the associated shield, the widths of the shields being measured in a direction parallel to the plane in which the

EMR sensor resides, the thicknesses of the shields being measured in a direction perpendicular to the widths thereof;

a supporting structure coupled to the EMR sensor for positioning the EMR sensor over the magnetic recording disk such that a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk.

18. (CURRENTLY AMENDED) A method of manufacturing an extraordinary magnetoresistance (EMR) magnetic head, comprising:

positioning a EMR sensor between a first and a second shield for being situated over a magnetic recording disk, the first and second shields not being in physical contact with each other, the ;

wherein a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk

wherein a thickness of a majority of each of the shields is less than one half a width of the associated shield, the widths of the shields being measured in a direction parallel to the plane in which the EMR sensor resides, the thicknesses of the shields being measured in a direction perpendicular to the widths thereof.

19. (CURRENTLY AMENDED) A disk drive system, comprising:

a magnetic recording disk;

an extraordinary magnetoresistance (EMR) head including:

a first shield and a second shield defining a gap adapted for being positioned over the magnetic recording disk, the first and second shields not being in physical contact with each other, and

an EMR sensor positioned between the first shield and the second shield, wherein a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk;

wherein a thickness of a majority of each of the shields is less than one half a width of the associated shield, the widths of the shields being measured in a

direction parallel to the plane in which the EMR sensor resides, the thicknesses of the shields being measured in a direction perpendicular to the widths thereof

an actuator for moving the EMR read head across the magnetic recording disk so the EMR read head may access different regions of magnetically recorded data on the magnetic recording disk; and

a controller electrically coupled to the EMR read head for detecting changes in resistance of the EMR read head.

20. (CURRENTLY AMENDED) An extraordinary magnetoresistance (EMR) magnetic head, comprising:

a first shield and a second shield constructed from a ferromagnetic material adapted for being positioned over a magnetic recording disk, the first and second shields not being in physical contact with each other;

an EMR sensor positioned between the first shield and the second shield, the EMR sensor including a semiconductor material with impurities imbedded therein;

a first insulator layer positioned between the first shield and the EMR sensor;

a second insulator layer positioned between the second shield and the EMR sensor; and

a pair of current contacts positioned on the EMR sensor for applying a current through the EMR sensor, the flow of current through the EMR sensor defining a plane;

wherein the EMR sensor is positioned between the first shield and the second shield such that the plane is perpendicular to magnetic flux associated with the magnetic recording disk;

wherein a thickness of a majority of each of the shields is less than one half a width of the associated shield, the widths of the shields being measured in a direction parallel to the plane in which the EMR sensor resides, the thicknesses of the shields being measured in a direction perpendicular to the widths thereof.

21. (CURRENTLY AMENDED) An extraordinary magnetoresistance (EMR) magnetic head, comprising:

a first shield and a second shield defining a gap adapted for being positioned over a magnetic recording disk; and

an EMR sensor positioned between the first shield and the second shield;

wherein a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk,

wherein magnetic fields associated with the magnetic recording disk reside in the shields such that the magnetic fields are applied to the sensor in a direction perpendicular to the plane in which the EMR sensor is positioned;

wherein a thickness of a majority of each of the shields is less than one half a width of the associated shield, the widths of the shields being measured in a direction parallel to the plane in which the EMR sensor resides, the thicknesses of the shields being measured in a direction perpendicular to the widths thereof;

wherein one of the shields has a centerline, where at least about 75% of the centerline resides along intersecting planes, one plane being parallel to a flow of flux through the shields, the other plane being perpendicular thereto

wherein the gap is offset from a center plane extending along a center line of the EMR sensor, the center line and center plane being parallel to the plane in which the EMR sensor is positioned.

22. (NEW) The magnetic head as recited in claim 1, wherein the gap is offset from a center plane extending along a center line of the EMR sensor, the center line and center plane being parallel to the plane in which the EMR sensor is positioned.

23. (NEW) The magnetic head as recited in claim 22, wherein an edge of the first shield adjacent the gap lies on the center plane of the EMR sensor.

24. (NEW) The magnetic head as recited in claim 1, wherein at least one of the shields has a centerline, where at least about 75% of the centerline resides along intersecting planes, one plane being parallel to a flow of flux through the shields, the other plane being perpendicular thereto.